Asphalting to Bestcounty-II and Surrounding Areas in Ward No-03 Yelahanka Satellite Town Sub Division

Third and Final Bill

Quality Control Reports

BOOK NO-03

QC ABSTRACT

NAME OF WORK: Asphalting to Bestcounty-II and Surrounding Areas in Ward No-03 Yelahanka Satellite Town Sub Division

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducte
		Materials				
1	DBM	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral Aggregate	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
		Compressive Strength(7days and 28days)	One Test	4.37	1	1
2	BC	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral Aggregate	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
3	BITUMEN	Ductility	One Test		1	1
		Softening Point	One Test		1	1
		Penetration	One Test		1	1
		Flash Point	One Test		1	1
		Fire Point	One Test		1	1
4	TACK COAT	Rate of spread	One Test		1	1

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Certificate No.: TC-5548

TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2022-01-06-07** **Date: 11-12-21**
Project Name	:	Asphalting to Bestcounty-II and Surrounding Areas in Ward No-03 Yelahanka Satellite Town Sub Division
Agency	:	M/s. Technical Manager (West), KRIDL, Bangaluru, 5th Block, 17th Main Shivakumar Swamy Building, Bhashyam Circle Bangalore-560010
Customer Reference	:	BBMP/EE/YNK.D/W.O/198/2019-20
Date of Receipt	:	09-12-21
Type of Mix	:	DBM-Plant (Dense Bituminous Macadam)
Date of test	:	09-12-21
Weight of Sample	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10 (grading -2)
37.5	0	0	0	100	100
26.5	172	172	3.4	96.6	90-100
19	1013	1185	23.7	76.3	71-95
13.2	520	1705	34.1	65.9	56-80
4.75	1150	2855	57.1	42.9	38-54
2.36	680	3535	70.7	29.3	28-42
0.3	950	4485	89.7	10.3	7-21
0.075	272	4757	95.1	4.9	2-8
PAN	243	5000	0.0	0.0	0

* The results obtained are satisfactory as per standard requirements.

FOR CIVIL Pro.
R.KARTHIK RECHAN
Authorized Signatory
Quality Manager

End of Report

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com
HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | ENVIRONMENTAL
WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES

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TESTS RESULTS ON STABILITY OF MIX

Lab ID : **CP-RW-2022-01-06-07** **Date: 13-12-21**

Project Name : Asphalting to Bestcounty-II and Surrounding Areas in Ward No-03 Yelahanka Satellite Town Sub Division

Agency : M/s. Technical Manager (West), KRIDL, Bangaluru, 5th Block, 17th Main Shivakumar Swamy Building, Bhashyam Circle Bangalore-560010

Customer Reference : BBMP/EE/YNK.D/W.O/198/2019-20

Date of Receipt : 09-12-21

Type of Mix : DBM (Dense Bituminous Mecadam)

Date of test : 09-12-21

The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.59	11.82	9KN(Min)
2	Marshal flow at 60°C, mm	3.56	3.87	2-4
3	Percent air Voids	4.52	4.17	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.54	14.76	13-15
5	Percent Voids filled with Bitumen(VFB %)	68.98	70.28	65-75
6	Density, g/cc	2.42	2.40	–

* The results obtained are satisfactory as per standard requirements.

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2022-01-06-07 **Date: 13-12-21**

Project Name : Asphalting to Bestcounty-II and Surrounding Areas in Ward No-03 Yelahanka Satellite Town Sub Division

Agency : M/s. Technical Manager (West), KRIDL, Bangaluru, 5th Block, 17th Main Shivakumar Swamy Building, Bhashyam Circle Bangalore-560010

Customer Reference : BBMP/EE/YNK.D/W.O/198/2019-20

Date of Receipt : 09-12-21

Type of Mix : DBM(Dense Bitumnous Macadam)

Date of test : 09-12-21

Type of Binder : 60/70

% of Binder Used : 5.0%

Weight of Aggregate : 200.0 gm

Weight of Binder : 10.0 gm

Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2022-01-06-07**	**Date: 21-12-21**
Project Name	:	Asphalting to Bestcounty-II and Surrounding Areas in Ward No-03 Yelahanka Satellite Town Sub Division	
Agency	:	M/s. Technical Manager (West), KRIDL, Bangaluru, 5th Block, 17th Main Shivakumar Swamy Building, Bhashyam Circle Bangalore-560010	
Customer Reference	:	BBMP/EE/YNK.D/W.O/198/2019-20	
Date of Receipt	:	20-12-21	
Type of Mix	:	DBM (Dense Bituminous Macadam)	
Date of test	:	20-12-21	

SLno	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	476	475
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	4.8	5.0
4	Average percentage	%	4.9	

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

CIVIL Pro BANGALORE

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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Lab ID : **CP-RW-2022-01-06-07** **Date: 21-12-21**

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 476

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	45	45	9.45	90.5	90-100
19	47	92	19.33	80.7	71-95
13.2	47	138.5	29.10	70.9	56-80
4.75	150	288.5	60.61	39.4	38-54
2.36	35	323.5	67.96	32.0	28-42
0.3	65	388.5	81.62	18.4	7-21
0.075	65	453.5	95.27	4.7	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 475

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	42	42	8.84	91.2	90-100
19	48	90	18.95	81.1	71-95
13.2	15	105	22.11	77.9	56-80
4.75	150	255	53.68	46.3	38-54
2.36	74	329	69.26	30.7	28-42
0.3	55	384	80.84	19.2	7-21
0.075	75	459	96.63	3.4	2-8

* The results obtained are satisfactory as per standard requirements.

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Quality Manager

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2022-01-06-07** **Date: 18-12-21**
Project Name	:	Asphalting to Bestcounty-II and Surrounding Areas in Ward No-03 Yelahanka Satellite Town Sub Division
Agency	:	M/s. Technical Manager (West), KRIDL, Bangaluru, 5th Block, 17th Main Shivakumar Swamy Building, Bhashyam Circle Bangalore-560010
Customer Reference	:	BBMP/EE/YNK.D/W.O/198/2019-20
Date of Receipt	:	14-12-21
Type of Mix	:	BC(Bitumenous Concrete)
Date of test	:	14-12-21

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	99.0	1.0	98.5	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.

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Authorized Signatory
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ಬಿ.ಬಿ.ಎಂ.ಪಿ. ಬೆಂಗಳೂರು-10೯

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com
HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL| ENVIRONMENTAL
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Certificate No.: TC-5548

TESTS RESULTS ON STABILITY OF MIX

Lab ID : **CP-RW-2022-01-06-07** **Date: 18-12-21**

Project Name : Asphalting to Bestcounty-II and Surrounding Areas in Ward No-03 Yelahanka Satellite Town Sub Division

Agency : M/s. Technical Manager (West), KRIDL, Bangaluru, 5th Block, 17th Main Shivakumar Swamy Building, Bhashyam Circle Bangalore-560010

Customer Reference : BBMP/EE/YNK.D/W.O/198/2019-20

Date of Receipt : 14-12-21

Type of Mix : BC (Bituminous Concrete)

Date of test : 14-12-21

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

SLNo	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	13.31	14.69	10KN(min)
2	Marshal flow at 60°C, mm	4.33	3.36	2-4
3	Percent air Voids	5.95	5.35	3-5
4	Percent Voids in mineral Aggregate(VMA %)	15.98	15.43	13-15
5	Percent Voids filled with Bitumen(VFB %)	72.48	69.70	65-75
6	Density, g/cc	2.25	2.26	–

* The results obtained are satisfactory as per standard requirements.

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End of Report

TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID	:	**CP-RW-2022-01-06-07**
		Date: 24-12-21
Project Name	:	Asphalting to Bestcounty-II and Surrounding Areas in Ward No-03 Yelahanka Satellite Town Sub Division
Agency	:	M/s. Technical Manager (West), KRIDL, Bangaluru, 5th Block, 17th Main Shivakumar Swamy Building, Bhashyam Circle Bangalore-560010
Customer Reference	:	BBMP/EE/YNK.D/W.O/198/2019-20
Date of Receipt	:	23-12-21
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	23-12-21

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	470	471
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	6.00	5.80
4	Average percentage	%	5.9	

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Certificate No.: TC-5548

Lab ID : CP-RW-2022-01-06-07 Date: 24-12-21

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 470

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	12	12	2.6	97.4	90-100
9.5	99	111	23.6	76.4	70-88
4.75	66	177	37.7	62.3	53-71
2.36	71	248	52.8	47.2	42-58
1.18	41	289	61.5	38.5	34-48
0.6	21	310	66.0	34.0	26-38
0.3	60	370	78.8	21.2	18-28
0.15	24	394	83.9	16.1	12-20
0.075	38	432	92.0	8.0	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 471

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	11	11	2.3	97.7	90-100
9.5	101	112	23.8	76.2	70-88
4.75	65	177	37.6	62.4	53-71
2.36	69	246	52.2	47.8	42-58
1.18	43	289	61.4	38.6	34-48
0.6	22	311	66.0	34.0	26-38
0.3	61	372	79.0	21.0	18-28
0.15	25	397	84.3	15.7	12-20
0.075	32	429	91.1	8.9	4-10

* The results obtained are satisfactory as per standard requirements

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Authorized Signatory
Quality Manager

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ಕ.ಆ.ಮ. ಬೆಂಗಳೂರು-106

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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Certificate No.: TC-5548

Format No: CP/TF/01

TEST REPORT ON BITUMEN

Lab ID	:	**CP-RW-2022-01-06-07**	**Date: 09-12-21**
Project Name	:	Asphalting to Bestcounty-II and Surrounding Areas in Ward No-03 Yelahanka Satellite Town Sub Division	
Agency	:	M/s. Technical Manager (West), KRIDL, Bangaluru, 5th Block, 17th Main Shivakumar Swamy Building, Bhashyam Circle Bangalore-560010	
Customer's Reference	:	BBMP/EE/YNK.D/W.O/198/2019-20	
Date of Receipt	:	07-12-21	
Sample Type	:	Bitumen	
Reference to BIS codes	:	IS: 1201-1220(1978) (Reaffirmed-2004)	
Date of test	:	07-12-21	

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	62	60 to 70
2	Softening Point, °C	52.2	Min. 40°C
3	Ductility, cm	95	Min. 75cm
4	Flash point, °C	242	Min. 220°C
	Fire point, °C	270	

* The results obtained are satisfactory as per standard requirements.

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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2022-01-06-07 **Date: 24-12-21**

Project Name : Asphalting to Bestcounty-II and Surrounding Areas in Ward No-03 Yelahanka Satellite Town Sub Division

Agency : M/s. Technical Manager (West), KRIDL, Bangaluru, 5th Block, 17th Main Shivakumar Swamy Building, Bhashyam Circle Bangalore-560010

Customer Reference : BBMP/EE/YNK.D/W.O/198/2019-20

Date of Receipt : 23-12-21

Type of Mix : Tack coat

Date of test : 23-12-21

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.790	0.744
4	Final weight of plate after application of tack Coat (c)	Kg	0.813	0.767
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

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Authorized Signatory
Quality Manager

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ಬಿ.ಬಿ.ಎಂ.ಪಿ. ಬೆಂಗಳೂರು-106

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com